

# (12) UK Patent Application (19) GB (11) 2 365 699 (13) A

(43) Date of A Publication 20.02.2002

(21) Application No 0106185.2

(22) Date of Filing 13.03.2001

(30) Priority Data

(31) 10012057 (32) 14.03.2000 (33) DE

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(51) INT CL<sup>7</sup>

**H04Q 7/32**

(52) UK CL (Edition T )

**H4L LECCP L209 L215**

(56) Documents Cited

**GB 2229340 A** **WO 98/58509 A1**  
**WO 01/43459 A2** **US 5814798 A**

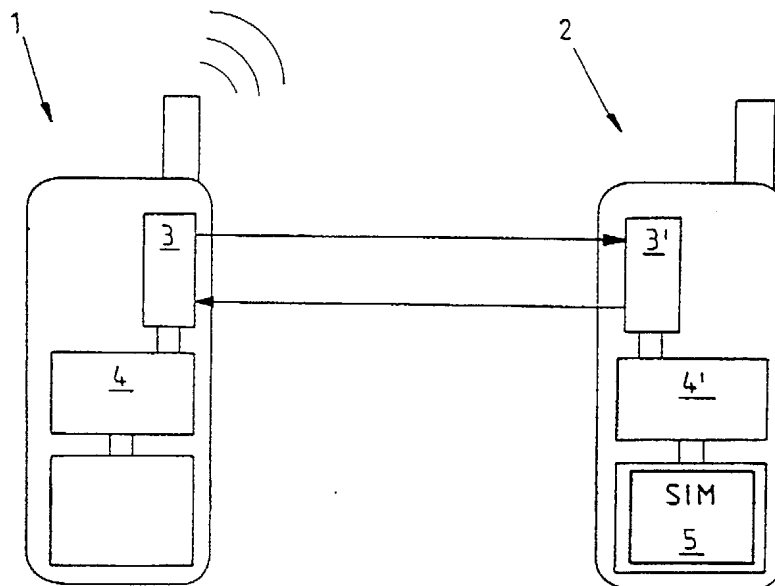
(58) Field of Search

UK CL (Edition S ) **H4L LECCP**  
INT CL<sup>7</sup> **G07C 9/00 , G08C 17/02 , H04B 5/02 7/26 ,**  
**H04M 1/66 1/67 , H04Q 7/32**  
Online: **WPI, EPODOC, JAPIO**

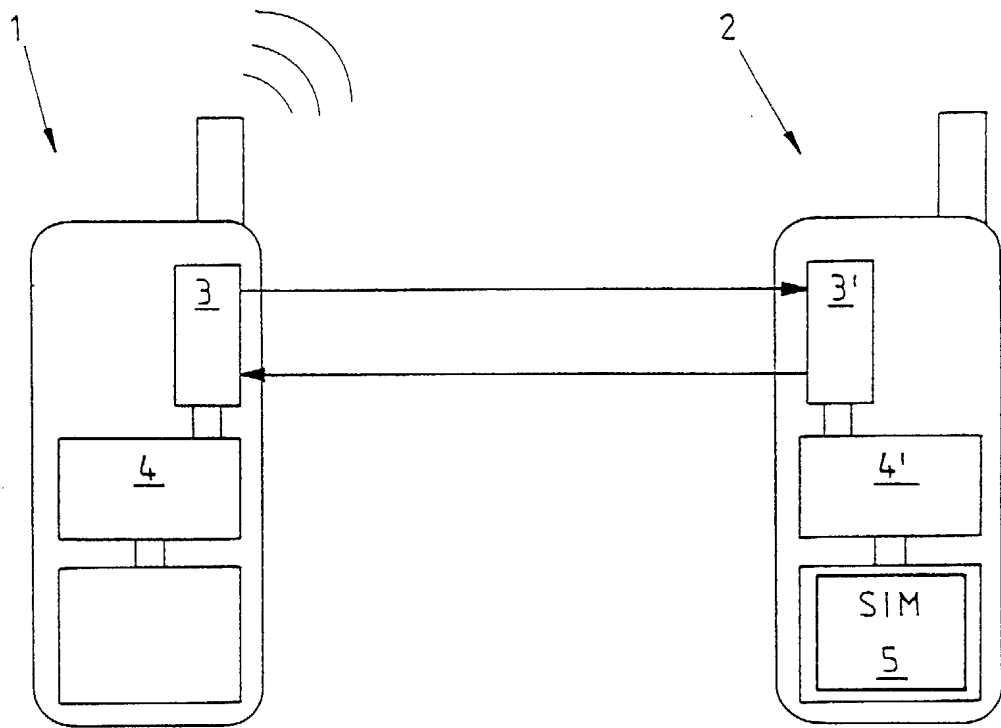
(54) Abstract Title

**Mobile telephone which provides identification and authentication data**

(57) A mobile telephone 2 having a SIM card 5 and control circuit 4' includes an interface 3' for wirelessly communicating identification and/or authentication data from the SIM card over a short-range to the wireless interface 3 of a second, SIM-less telephone, e.g. mobile telephone 1, thereby allowing the second telephone to access a radio communications network. The SIM-less telephone 1 may be separately identified and/or authenticated by the donor mobile telephone 2, with data being transmitted over the short-range wireless connection 3, 3' only if the SIM-less telephone 1 is authorised to receive the data. The donor telephone 2 may cease to operate whilst the SIM-less telephone 1 is connected to the network, with the donor telephone resuming operation when the SIM-less telephone disconnects, or when the short-range wireless connection 3, 3' is broken. The SIM-less telephone may be a motor vehicle radiotelephone.



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Description

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Method of providing identification and authentication data

Technical field

10 The invention relates to a method of providing identification and/or authentication data required by a first appliance, in particular a mobile telephone and to a mobile telephone having a device for providing identification and/or authentication data.

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Prior art

If a mobile telephone wishes to use a service in a radio network and to set up, for example, a telephone connection, it has to alert the transmitting installations of the radio network using identification and/or authentication data so that said transmitting installations can check the identity and access authorization of the telephone and allocate utilization costs incurred. In this connection, a mobile telephone is understood as meaning both portable appliances (mobiles) and permanently installed radio sets (for example, radiophones in motor vehicles). The said identification and/or authentication data are normally stored on a microchip card that is termed an SIM (subscriber identification module) card. Such an SIM card has to be inserted in the mobile telephone by a comparatively complicated procedure in order to make the necessary identification and/or authentication data available.

In many cases, a user who has access authorization to a radio network, such as, for example, the GSM (Global Standard for Mobile Communication) has more than a mobile  
5 telephone. In particular, the users of a permanently installed radio set are often also users of a portable radio set, such as, for example, a GSM mobile. Both appliances require an SIM card for their operation. As a rule, the contract key of a radio network operator is,  
10 however, issued only with a single SIM card, with the result that, at a given time, only one of the radio sets can be equipped with such a card in each case. If the user would like to use the appliance that does not contain the SIM card at that time, he has to remove the SIM card from  
15 the other appliance beforehand and insert it in the desired appliance. This is a complicated and cumbersome procedure. It has to be performed relatively often since the user always has to insert the SIM card in the portable mobile telephone if he is not at the location of the permanently  
20 installed radio set. If, on the other hand, he is at that location, said radio set is preferably used since, as a rule, it offers a significantly greater ease of operation.

To avoid the cumbersome changing of the SIM cards, a  
25 separate, specific SIM card can be inserted in each of the appliances. However, this has the consequence that correspondingly doubled radio network utilization costs are incurred. In addition, some radio network operators also offer the possibility of acquiring two SIM cards with the  
30 same call number (twin card concept). In this case, regardless of whether a telephone call is made from the portable mobile telephone or from the permanently installed radiophone, only a single user is manifested to the radio

network. However, a second SIM card is, as a rule, subject to cost and, in addition, requires a cumbersome operating procedure at the radiophone since the card has to be removed and stored when the vehicle is left and a PIN  
5 (personal identification number) has to be entered when the radiophone is put into operation.

Furthermore, the input of identification and/or authentication data is necessary not only in mobile  
10 telephones but also in many other electronic appliances. By way of example, mention may be made here of the PIN input in the case of automatic dispensing machines, the card presentation when buying goods, the access check at the factory gate, the activation of the radiophone by getting  
15 into the vehicle and actuation of the ignition, and this enumeration could be continued further. The methods known in this connection for inputting data are all very cumbersome and always tailored for a particular appliance.

20 **Description of the invention, object, achievement, advantages**

Against this background, the object of the present invention was to provide a method and a device with which  
25 the provision of identification and/or authentication data is facilitated in the operation of a plurality of appliances, in particular of more than one mobile telephone.

30 This object is achieved by a method for providing the identification and/or authentication data needed by a first appliance, in particular by a first mobile telephone, that is characterized in that said data are provided by a second

mobile telephone via a wireless short-range connection. In the situation described at the outset where a user has two or more mobile telephones, but only one original source for identification or authentication data, namely the SIM card, the use of said mobile telephones can be appreciably facilitated by the method according to the invention. The user has in fact no longer to insert the data source (SIM card) into the respective mobile telephone to be used, but he can leave said data source in the second mobile telephone since the first mobile telephone acquires the items of information needed via a wireless short-range connection. In this context, a short-range connection should be understood as meaning a connection whose functioning requires the communicating mobile telephones to be at a distance of preferably less than 20 m, particularly preferably, less than 10 m from one another. The wireless short-range connection may be made, for example, by means of infrared signals or radio signals. The limitation of the range to the adjacent area serves not least as a safeguard that third-party appliances can receive identification and/or authentication data in a manner that cannot be controlled by the user. A communication via the adjacent area is, incidentally, also completely adequate for the desired purpose since a user can provide the portable mobile telephone, which, as a rule, he always carries with him in any case, with the original data source.

Furthermore, in relation to other appliances, the mobile telephone, which has increasingly established itself as a constant travelling companion for human beings, becomes an identity module as a result of the provision according to the invention of an interface for a wireless short-range communication. Consequently, all the methods used hitherto

for identity authentication (for example PIN input in the case of automatic cash dispensers, card presentation when buying goods, access control at the factory gate, activation of the radiophone by getting into the vehicle and actuation of the ignition) can be replaced by the method according to the invention. In this context, identification can always take place by the mobile telephone transmitting appropriate data. It is only when the mobile telephone, which is actually always switched on and is located where the user is, is put into operation that a PIN may possibly have to be inputted.

In accordance with a further development of the invention, the first appliance, in particular the first mobile telephone, is separately identified and/or authenticated by the second mobile telephone when the short-range connection is made. Transmission of data via the short-range connection takes place only if the first appliance, or mobile telephone, is authorized to receive said data. Since the identification and/or authentication data are important data that have to be protected against misuse, it is necessary to ensure that only authorized appliances, or mobile telephones, have access to said data via the wireless short-range connection. This is achieved by the said method in which the first appliance, or mobile telephone, requesting the data first has to identify and/or authenticate itself with respect to the second mobile telephone. Once this has happened, the second mobile telephone can establish by comparing the data received with those from an internally stored database whether said first appliance is authorized to receive the desired data. Which appliances should be authorized to receive the data can be stipulated by the user of the second mobile telephone

through an appropriate configuration in a manner known per se (comparable with the signing-on of a cordless telephone at a base station).

5 According to another further development of the invention, the second mobile telephone ceases its own telephone operation when it transmits the identification and/or authentication data to a first mobile telephone. This ensures that always only one mobile telephone manifests  
10 itself with the identification and/or authentication data to the radio network at the same time. In order to ensure this with greater certainty, the second mobile telephone preferably ceases its telephone operation even before transmitting the identification and/or authentication data.

15

After it has ceased its telephone operation in the manner described above, the second mobile telephone preferably resumes its telephone operation if this is cleared by the first mobile telephone or if the short-range connection  
20 breaks down. Clearance by the first mobile telephone may take place if it is certain that no telephone connection is to be made and can be made by the latter so that a double utilization of the identification and/or authentication data is prevented. Furthermore, it is expedient for the  
25 second mobile telephone to resume its operation if the short-range connection has broken down since, in that case, the first mobile telephone cannot continue its telephone operation owing to the separation from access to the identification and/or authentication data. Preferably, the  
30 second mobile telephone maintains a certain waiting time in this connection before it resumes telephone operation on its part after the short-range connection has broken down. This can prevent brief interruptions resulting in a



continuous switching on and off of telephone operation. A breakdown occurs in the short-range connection, in particular, if the user having the second mobile telephone moves away from the first mobile telephone, that is to say, for example, leaves the car having a permanently installed mobile telephone (radiophone) with a portable mobile telephone (mobile). In that case, telephone operation is expediently transferred to the portable mobile telephone, which is the only telephone to which the user has access after leaving the car.

The invention furthermore relates to a mobile telephone which has a device for providing identification and/or authentication data and which is characterized in that it has an interface for wireless communication in the adjacent area and in that it is so designed that the identification and/or authentication data can be transmitted via the said interface to another appliance, in particular another telephone or can be received by another appliance, in particular another telephone. As a result of the wireless communication interface in the adjacent area, the mobile telephone is designed to perform a method of the type described above. If two or more such mobile telephones are used, it is accordingly possible to provide only one of said mobile telephones with the original data source for the identification and/or authentication data, such as, for example, an SIM card, and nevertheless have the facility for telephoning with one of the other mobile telephones. The only requirement in this connection is that the mobile telephone having the data source is situated in the region in which the short-range connection functions so that the necessary data can be transmitted.

**Best way of implementing the invention**

An exemplary embodiment of the invention is described below with the aid of the sole figure.

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The figure shows two mobile telephones 1 and 2 of basically similar design. In this arrangement, the first mobile telephone 1 may, for example, be a radiophone that is permanently installed in a motor vehicle, whereas the  
10 second mobile telephone 2 may be a portable appliance, such as, for example, a GSM mobile.

Unlike the first mobile telephone 1, the second mobile telephone 2 contains, at the appropriate insertion point, a  
15 microchip 5, the so-called SIM card. Located on the latter are the identification and/or authentication data that indicate to the radio network the authorization of the mobile telephone 2 for access to said network. In this first mobile telephone 1, the corresponding installation  
20 point is empty so that, as a rule, it cannot be operated in the radio network.

According to the invention, however, such an operation of the first mobile telephone 1 is made possible without an  
25 SIM card installed by the fact that the control circuit 4 for providing the identification and/or authentication data in the first mobile telephone 1 is coupled to an interface 3 that makes possible a wireless communication in the adjacent area. Said communication takes place with the  
30 second mobile telephone 2, whose circuit 4' for providing identification and/or authentication data is likewise connected to a corresponding interface 3'. Via the interfaces 3 and 3', the identification and/or

authentication data can then be transmitted from the SIM card 5 in the second mobile telephone 2 to the first mobile telephone 1, which is consequently enabled to make and maintain a successful connection to the radio network.

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The second mobile telephone 2 consequently serves as an identification module that contains the original data source (SIM card 5). As soon as the operating range, that is to say a distance of approximately 2 m from the first mobile telephone 1, is reached, with the identification module 2, a communication can take place between the interfaces 3 and 3'.

To implement telephone operation, the first mobile telephone 1 needs one or more authentication functions (ATF) 1, for example ciphering and authentication for GSM operation, a user verification by PIN and PUK input, or it requires access to a personal data memory PD or a connection to the carrier of said ATF 1 and/or the PD, which may, for example, be the SIM card 5. The connection between the mobile telephones 1 and 2 should take place automatically using a further authentication method ATV 2, which may also contain the ATF 1 or parts thereof. The connection is made wirelessly and provides the mobile telephone 1 both with access to the personal data memory and to the ATF 1. The authentication method ATV 2 for the communication between the two mobile telephones 1 and 2 may, for example, be the so-called Bluetooth method of authentication and automatic recognition of communication parameters (Bluetooth Negotiation Procedure).

After successfully setting up a connection to the first mobile telephone, but before provision of ATF 1 and

optionally PD, the second mobile telephone (identifying module 2) deactivates its own function, which may be, for example, a full-service GSM operation since this would collide with the functioning of the first mobile telephone 1 (for example, full-service GSM operation in the case of the radiophone). If the first mobile telephone 1 is then switched off or if the second mobile telephone 2 is moved away from the operating section of the first mobile telephone 1 until the operating range of the latter is left (in general more than 10 m), the logic connection is preferably restored and the second mobile telephone 2 optionally resumes its own function (for example full-service GSM operation).

The automatic making of a connection from the second mobile telephone 2 to the first mobile telephone 1 can preferably be configured by the user of the second mobile telephone 2 so that he can control which mobile telephone 1 divulges his identity. For example, the making of the connection may be capable of being switched off or may be activated only in the case of certain groups of mobile telephones 1.

By providing an interface according to the invention for a wireless close-range communication, the mobile telephone (mobile), which is increasingly establishing itself as a constant travelling companion of human beings, becomes an identity module. In the long term, all the methods of identity authentication used hitherto (for example, PIN input in the case of cash dispensing machines, card presentation when buying goods, access control at the factory gate, activation of the radiophone by getting into the vehicle and actuation of the ignition) may consequently be replaced by the method described above. An

identification can always take place by transmitting appropriate data from the mobile telephone. It is only when the mobile phone, which is actually always switched on and is located where the user is, is put into operation that a  
5 PIN possibly has to be inputted.

**Patent Claims**

- 5 1. Method of providing identification and/or authentication data required by a first appliance, in particular a first mobile telephone (1), characterized in that said data are provided by a second mobile telephone (2) via a wireless short-range connection.
- 10 2. Method according to Claim 1, characterized in that the first appliance (1) is separately identified and/or authenticated by the second mobile telephone (2) and data is transmitted via the close-range connection
- 15 only if the first appliance (1) is authorized to receive said data.
3. Method according to one of Claims 1 or 2, characterized in that the second mobile telephone (2)
- 20 ceases its own telephone operation when the identification and/or authentication data are sent to the first mobile telephone (1).
4. Method according to Claim 3, characterized in that the
- 25 second mobile telephone (2) resumes telephone operation again when clearing takes place by the first mobile telephone (1) or the close-range connection breaks down.
- 30 5. Mobile telephone (1, 2) having a device (4, 4') for providing identification and/or authentication data, characterized in that it has an interface (3, 3') for wireless communication in the adjacent area and in

that it is so designed that the identification and/or authentication data can be transmitted via the interface to another appliance, in particular to another telephone or can be received by another appliance, in particular another telephone.

- 5       6.    Method substantially as hereinbefore described with reference to the accompanying drawing.
- 10   7.    Mobile telephone substantially as hereinbefore described with reference to the accompanying drawing.



INVESTOR IN PEOPLE

**Application No:** GB 0106185.2  
**Claims searched:** All

**Examiner:** Brendan Donohoe  
**Date of search:** 29 November 2001

## Patents Act 1977 Search Report under Section 17

### Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.S): H4L LECCP

Int Cl (Ed.7): G07C 9/00; G08C 17/02; H04B 5/02, 7/26; H04M 1/66, 1/67 ; H04Q 7/32

Other: Online: WPI, EPODOC, JAPIO

### Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2229340 A (TECHNOPHONE LTD) - See whole document, especially page 3 lines 5-32, page 7 lines 26-30, and page 8 lines 10-22.	1-5
X, E	WO 01/43459 A2 (PHILIPS) - See whole document, especially page 2 lines 5-21, page 3 line 28-page 4 line 20, page 5 lines 14-22, and page 7 line 26 - page 8 line 2.	1, 2 & 5
X	WO 98/58509 A1 (GENERALDIREKTION) - See whole document.	1, 2 & 5
X	US 5814798 A (ZANCHO) - See especially figure 6, column 3 lines 6-58, column 5 lines 28-43, and column 9 lines 43-55.	1, 2 & 5

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.